

Five Year Forest and Range Resource Program 1992 - 1997

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**Province of
British Columbia**
Ministry of
Forests

Minister's message

Our forests represent more than the source of timber that drives much of our economy. They are our watersheds, habitat for fish and wildlife, forage for our ranching industry and an essential scenic backdrop valued by residents and tourists.

As we enter the 1990s, it is increasingly clear that there are limits to our vast forest resources.

Population growth and new expectations for our forests require us to harmonize seemingly contradictory uses.

We must adapt our forest management to reflect current expectations of all British Columbians.

To adapt our forest management, the government is undertaking initiatives on three key fronts.

The initiatives are interrelated and involve the Forest Service and a number of other agencies.

The first initiative is a major update of our inventories.

In the past, our inventories focussed on estimates of timber volume at the management unit level (e.g., timber supply area or tree farm licence). Although adequate for sub-regional planning, these inventories were insufficient for local planning.

Through work with all other resource agencies, inventory information is being updated to reflect all forest values. It will be capable of effectively supporting local land-use planning. In addition, the information will be more detailed for selected areas of intensive resource conflict and will be readily accessible at the local level.

The second initiative is a re-examination of where and how much we harvest. Most of our harvest levels were set during the early '80s and do not reflect subsequent changes in management practices. The public also

expects better conservation and management of our biologically diverse forests and old-growth ecosystems. These pressures require a review of our harvest to ensure sustainability.

Thirdly, the Forest Service is developing a Forest Practices Code to ensure that our forest practices are sustainable. The objective is to ensure that the management of our forest is based on sound ecological practices and reaches the highest stewardship standards.

These initiatives will complement the efforts of the Commission on Resources and Environment to develop a land-use plan for the province.

This plan will enable us, through public input, to achieve a balance that preserves our environmental heritage and ensures a sustainable forest to maintain our economy.

The Forest Service has been a pioneer in resource planning and public involvement in this province and looks forward to playing a key role, along with other agencies, in helping the commission fulfill its task.

The commission's first priority is to develop a regional land-use plan for the most controversial area of the province: Vancouver Island.

The government's goal is to enhance forest management in keeping with the expectations of all British Columbians.

The Forest Service will continue to progress toward that goal by supporting the Commission on Resources and Environment, and by improving resource inventories, timber supply analysis, and forest practices.

Dan Miller
Minister of Forests

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Key initiatives

Resource inventories

Today, as society's values change, the public, government ministries, and resource industries are demanding inventory information on all resources, in a standardized form, for more localized areas.

The Forest Service, in cooperation with other resource ministries, has undertaken the development and application of a province-wide, comprehensive, and continuous resources inventory through the following initiatives:

- An inter-disciplinary Resource Inventory Committee has been formed to plan and develop a program for these inventories.

Several task forces have been formed under the committee to:

- determine what information is vital for effective land management, at what levels of detail, and for what purposes; and,
 - define and test how this inventory information can most efficiently be acquired so that it minimizes duplication, promotes cooperative data collection, and encourages broad application and long-term relevance.
- Under the committee's direction, a Corporate Resource Inventory Initiative is being undertaken.

This initiative involves the Forest Service, the Ministry of Environment, Lands and Parks, the Ministry of Tourism and Culture, and the Ministry of Energy, Mines and Petroleum Resources.

The initiative will bring all major resource inventories to a common baseline level, suitable for land-use planning in each region of the province, and will develop more detailed resource inventories for selected areas of intense resource-use or conflict.

The integration of these programs will provide consistency of information, reduce duplication, and enhance communication on new technologies.

- To improve availability of forest, range, and recreation data, the inventory program is using "on-line" computer workstations at region and district offices to decentralize data entry and reporting to the district level.

The growth and yield component of the inventory program will also develop and implement advanced growth and yield models, as recommended by the forest productivity councils of B.C., and will refine volume and decay estimations to complement this initiative.

Timber supply analysis

One of the most important responsibilities entrusted to the Forest Service is setting the rate of harvest for management units.

The allowable annual cut is a key determinant of B.C.'s social, economic and environmental state.

The chief forester is responsible for establishing the allowable annual cut for B.C.'s timber supply areas and tree farm licences.

Legislation requires that the allowable annual cut determination consider a variety of factors, only some of which can be quantified and subjected to analysis.

Ultimately, the allowable annual cut determination is a synthesis of information and analysis, and, as such, is based on the chief forester's professional judgment.

The most critical consideration in setting the harvest level is a timber supply analysis.

Key initiatives

The analysis considers present resource status or inventory, and projected trends in stand growth, industry activity, and demands for various forest resource uses.

A recent Forest Service study, *Review of the Timber Supply Analysis Process for B.C. Timber Supply Areas*, concluded that many of the procedures used to predict timber supply require upgrading.

The weakest area of the analysis process is the prolonged schedule under which analyses are completed and subsequently revisited.

The review concluded that many allowable annual cuts are out of date because they were established in the early 1980s and do not account for many of the changes in forest land-use and management practices.

Typically, non-timber resources, such as aesthetics, wildlife, and water supply, have not been adequately considered in establishing allowable annual cuts, so there are conflicts between approved timber supply levels and integrated resource management objectives.

As a result of the study, a new timber supply section was established in the integrated resources branch.

During the short period since the section's inception, strong expertise has been recruited to complement existing staff.

The group's recent and ongoing accomplishments include the development of improved analysis methods to better accommodate spatial harvesting prescriptions, improved sensitivity analysis, and better recognition of integrated resource management techniques.

Timber supply planning's long-term strategic objective is to conduct timely, reliable, and responsive timber supply analyses that support day-to-day forest management issues, forest land-management planning, and allowable annual cut determination.

Short-term objectives are to conduct a review of timber supply for the province by the end of 1994. This will necessitate a review of current management practices and assumptions.

Revised procedures for conducting the review of timber supplies are being developed and will be communicated to the Forest Service and the public.

A Forest Service-wide training program for the revised concepts of timber supply and allowable annual cut determination will be developed.

Forest Practices Code

The Forest Practices Code was initiated in response to the recommendation of the B.C. Forest Resources Commission that a "single, all encompassing code of forest practices be established through the introduction of a Forest Practices Act."

The code is intended to document those forest practices that are workable, understandable, and environmentally sound.

The first step in developing a code of forest practices was the release of a discussion paper seeking public input on what a code should entail.

Public input was received between July, 1991, and January, 1992.

Key initiatives

The next phases of developing a code have been assigned to the B.C. Forest Resources Commission.

The commission will review the public input, and, based on its findings, make recommendations to the Minister of Forests on the framework of a code.

Forest Service staff will continue to compile and prepare the technical aspects of forest practices and guidelines that will form the code.

The results of related initiatives, including the development of forest practices to maintain biodiversity and to protect old-growth values, will be incorporated into a forest practices code.

i) Guidelines for the maintenance of biodiversity

Biological diversity (biodiversity) is an issue of increasing importance to B.C.

Our province's biological diversity is unique in North America. The reasons for maintaining and even enhancing this living legacy range from the ethical debate for the intrinsic value of maintaining all forms of life, to the utilitarian view of providing for human need.

The Forest Service's present efforts have focussed on the cooperative development and implementation of forest management guidelines at both the stand and watershed levels.

Draft harvesting and silviculture guidelines for the retention of snags, critical habitat for more than 90 native vertebrate species, and landscape-level biodiversity have recently been prepared for tree farm licences in the Vancouver forest region.

These guidelines are currently under review.

The production, implementation, and monitoring of existing guidelines, will play a key role in the maintenance of B.C.'s biological diversity.

ii) Old-Growth Strategy Project

Biodiversity is also one of the key old-growth values being examined by the Old-Growth Strategy Project.

The project, initiated to develop a strategy for conserving and managing the province's old-growth forest ecosystems, involves representatives of the forest industry, public groups, academics, and government agencies. It is coordinated by an inter-ministry management committee.

In February 1992, a draft strategy was reviewed by the public through a series of meetings held across the province. After revisions are made, a finalized strategy will be presented to government for acceptance and implementation.

The implementation of the objectives and goals set by the strategy will require the commitment of resources in the Forest Service and other ministries, specifically the Ministry of Environment, Lands and Parks.

The Old-Growth Strategy Project, besides providing input into a Forest Practices Code, will be integrated with other land-use planning initiatives, such as Parks and Wilderness for the '90s and the recently announced Commission on Resources and Environment.

Forest Service programs

The Forest Service manages the forest and range resource through eight programs.

Management services program

The management services program provides the other Forest Service programs with executive direction and basic infrastructure.

At headquarters in Victoria, the program includes the minister's office, senior management, and the audit services, financial services, human resources, information systems, public affairs, and technical and administrative services branches.

Legal services are also administered under the program, as are grants in support of better forest management.

In regional and district offices, the program includes senior management and administrative and technical support personnel.

The large size and high degree of decentralization of the Forest Service makes executive direction and support services complex.

The Forest Service will have a total of 4,200 staff in 1992-93 in six regional offices, 43 district offices, and 17 branches in headquarters. The aim of those responsible for support services is to operate as a team, with operating management and staff, in carrying out the Forest Service's business.

The computerization of Forest Service functions continues to be a high priority.

Local area networks were installed in all district and regional offices during the past fiscal year, giving each office its own source of computer power and electronic data storage.

The full exploitation of this investment will commence in 1992-93.

Some 30 major information systems have been installed over the past three years, and several are now under development, notably in the area of silviculture management.

The next year will see a consolidation of the operational use of a number of previously developed systems.

Revenue management also remains important.

With the completion of the three-year Revenue Management Project in March 1992, the Forest Service is equipped with better tools for revenue management. Revenue collection can now be made more efficient and effective.

Budgeted expenditure for 1992-93, including \$8.1 million in support of the Forest Renewal Program, is \$111.6 million.

Integrated resource management program

The integrated resource management program includes five components and a budget for 1992-93 of \$29.9 million.

Three are sub-programs:

- integrated resources;
- range; and,
- recreation.

They focus on resource management.

The other two — corporate policy and planning branch and economics and revenue branch — provide specialized assistance to all parts of the Forest Service.

Forest Service programs

■ Integrated resources

The integrated resources sub-program provides the framework and tools for delivering Integrated Resource Management.

The four primary functions of the sub-program are:

- the design and delivery of effective forest-land planning processes and Geographical Information System (GIS) applications for resource planning;
- the development and delivery of timber supply analyses to support the chief forester's allowable annual cut decisions;
- the design and delivery of resource-related guidelines and public participation policies and tools; and,
- land-use policy products.

The integrated resources sub-program consists of three activities:

- resource planning;
- timber supply planning; and,
- integrated resources.

• Resource planning

The resource-planning activity delivers integrated resource plans and land-use policies that guide the management of range, recreation, and timber resources.

The two main types of plans produced by resource planning are:

- sub-regional level Forest Land Management Plans; and,
- local level plans (e.g., for watersheds).

The Forest Service is playing a lead role in developing and implementing a major initiative in forest land management planning. It will provide a broad land-use and resource-management strategy for each planning area.

This initiative is being developed jointly with other resource agencies, and will incorporate consideration of all resource values as well as enhanced public involvement/cooperation in plan delivery.

Resource planning activity goals for the next five years are to:

- provide leadership in the development of provincial resource-planning strategies;
- complete the forest land management planning policy and procedures;
- complete 12 forest land management plans;
- initiate a further 10 forest land management plans;
- prepare a policy for local-level planning;
- complete 30 local plans;
- revise and maintain the Forest Service planning framework; and,
- develop planning tools to do socio-economic analysis, integrated resource analysis, and zoning systems (resource emphasis areas).

The resource planning activity will support the regional and provincial planning initiatives of the Commission on Resources and Environment.

Any changes that the commission makes to the provincial planning framework may require adjustments to the Forest Service's planning framework.

• Timber supply planning

Timber supply planning is conducted within the context of land-use goals and options derived from the resource planning activity.

An important function of timber-supply planning is to assist the chief forester in the determination of allowable annual cuts for timber supply areas and tree farm licences.

Forest Service programs

The objective of the timber supply planning activity is to conduct timely, reliable, and responsive timber supply analyses.

An equally important responsibility of timber supply planning is the review of the tree farm licence management working plans.

All timber supply analyses must adequately reflect integrated resource management objectives.

At present, the Forest Service is undertaking an accelerated review of the province's timber supply. This will provide an updated view of the provincial timber supply as well as enable the determination of new allowable annual cuts for units where the chief forester deems it to be necessary.

• Integrated resources

The integrated resources activity designs and delivers integrated resource management forest practices and guidelines.

This activity is also responsible for responding to public concerns about provincial and local resource-management issues, and is revising the public involvement policy and handbook.

In addition, the activity is guiding development of the Old-Growth Strategy Project and the Forest Practices Code.

Work is currently underway on a number of guidelines which will eventually form part of the Forest Practices Code, including:

- interim biodiversity guidelines;
- revised coastal fish/forestry/wildlife guidelines;

- interior fish/ forestry/wildlife guidelines; and,
- community watershed management guidelines.

The production, implementation, and monitoring of these practices and guidelines will play a key role in the advancement of integrated resource management.

■ Range

The province's rangelands serve a wide variety of interests, from ranching and tourism (guides, packers and trail-ride outfitters), to wildlife and general recreation.

The range sub-program provides stewardship, conservation, rehabilitation, and enhancement of Crown rangeland, 80 per cent of which is land which is also managed for the production of timber and other products.

Use of the range resource by livestock, wild ungulates, guide/outfitters, packers and others is integrated to minimize conflicts.

The range sub-program administers range tenures and recovers revenues from the ranching industry for the use of one million animal unit months (AUMs) of forage.

Increasing demands on the range resource required the development of a five-year strategic plan.

This strategic plan clarifies the mission and philosophy of the range sub-program.

New initiatives, based on the strategic plan, were begun in 1990-91 to improve rangeland stewardship.

Forest Service programs

Implementation will continue in 1992-93 and will include increased planning, inventory, monitoring of range condition, research, weed control, and forage enhancement.

Investments will also be made in maintaining and building fences, water developments and other facilities, to achieve efficient resource use.

■ Recreation

The recreation sub-program has two roles:

- to manage recreation resources, including protection of present and future recreation values, such as scenic landscapes, wilderness, and cultural and heritage landmarks; and,
- to manage use of these resources by providing safe, sanitary, socially acceptable, and environmentally sound recreation facilities.

The recreation sub-program's goals for the next five years are to:

- carry out a program review;
- recommend changes to recreation legislation;
- develop provincial and regional landscape management guidelines;
- manage wilderness;
- maintain a network of sites and trails that meets the public's needs;
- manage dispersed recreation-use throughout provincial forests;
- complete the recreation inventory, update it on a five-year basis, and load it onto the Forest Service's forest inventory database;
- meet the public's need for information on recreation opportunities, forest etiquette, and safe use of forest lands;
- further develop an interpretive forest program;

- complete recreation corridor planning studies under the Rivers and Trails Program (formerly the Recreation Corridor Program); and,
- study recreation values, demand for recreation opportunities, landscape preferences, and visitors' satisfaction with the ministry's recreation sites and trails.

Inventory program

The inventory program maintains a comprehensive inventory of B.C.'s timber resources and combines it with range and recreation inventories from the integrated resource management program.

It provides computerized maps and a geo-referenced database to resource managers throughout the Forest Service, outside agencies and the private sector.

Inventory program goals for the next five years are to:

- update, on a two-year cycle, inventories of the whole province for timber harvests and wildfire areas (completing the updating of all inactive map sheets before preparation of five-year resource management plans);
- establish 1,500 samples annually for growth and yield studies;
- develop and implement a continuous forest inventory sampling strategy, as recommended by the Forest Resources Inventory Committee; and,
- re-inventory 50 per cent of the province's forests (more than 3,000 maps).

The program includes the activities of the inventory branch in Victoria and inventory personnel in the regions and districts.

Forest Service programs

The private sector is used extensively for surveys, data compilation and mapping.

In addition to the regular inventory program, the Forest Renewal Plan will provide \$51 million over the next four years for enhancing the quality of the second-growth inventory and carrying on the development of common inventory standards and procedures through the Provincial Forest Inventory Committee.

These will support attainment of silvicultural goals.

The 1992-93 budget is \$11.8 million for the regular inventory program, plus \$12.6 million for inventory work under the Forest Renewal Plan.

Harvesting program

The harvesting program provides for:

- the disposition of the rights to Crown timber;
- administration of timber harvests under a variety of tenures;
- pricing of Crown timber, collection of revenues; and,
- the administration of the Forest Service road network.

The program encompasses staff in:

- the timber harvesting and valuation branches in Victoria;
- timber, engineering, and valuation staff in each regional office; and,
- timber, engineering, and scaling staff in each district office.

The budget for the 1992-93 fiscal year is \$56.9 million.

Direct harvest revenue (excluding the Small Business Forest Enterprise Program) for 1992 is forecast at \$469 million in stumpage and \$27 million in royalties.

A further \$42.5 million in revenue is estimated from other direct forest charges.

The five-year revenue forecast to 1997 is estimated to increase at three per cent per annum on average.

The effect of the outcome of the current U.S. countervailing duty action against Canada was not considered in the forecasted revenues.

■ Valuation

The valuation sub-program ensures that the Crown receives a fair return from the harvesting of its timber.

It administers the policy and procedures for determining stumpage and the collection of revenues for timber harvested from Crown land. This program also administers the policy and procedures for cruising timber (estimating the volume), before a harvest, scaling the timber, and accounting for residue and waste (measuring the volume) after harvest.

Through a series of computer programs, the sub-program's revenue management system calculates the quarterly stumpage rates and harvest volume from scale returns, applies the rate to the volume, and issues the scale and royalty invoices.

The Harvest Data Billing System also produces data so that the Forest Service can control the rate of harvesting from individual licensees.

The Comparative Value Stumpage Pricing System generates approximately 3,000 stumpage adjustment notifications each quarter, which advise licensees of changes to their stumpage rates.

Forest Service programs

Annually, 40,000 log sample scale tallies, 40,000 monthly weight scale returns and another 40,000 piece scales are processed to generate more than 80,000 scale and royalty invoices.

The sub-program's priorities are to:

- closely monitor and re-estimate the timber harvesting cost estimates and other appraisal cost estimate factors for the province's coastal and interior portions;
- continue to introduce approved changes in cost estimate values to the timber pricing system to ensure stumpage rates for the thousands of timber stands appraised each year are equitable among licensees, and reflect the comparative value of the timber in those stands; and,
- continue to focus on revenue risk management and business practices as they relate to timber cruising, pricing, scaling, residue and waste, log transportation, and, as required by legislation, timber marking and regulations.

■ Timber harvesting

The *Forest Act* specifies a number of forms of agreement by which the Forest Service may authorize timber harvesting.

When the province's chief forester determines the level of yearly harvest for a timber supply area or tree farm licence, portions of that allowable annual cut are directed by the Minister of Forests to the various licensing categories set out in the *Forest Act*.

The timber harvesting sub-program includes that apportionment process, the commitment of specified volumes to individual licences, and the administration of those licences.

The total number of timber harvesting agreements in place in the province is approximately:

- 35 tree farm licences;
- 200 forest licences;
- 500 woodlot licences;
- 550 licences to cut;
- 1,500 timber sale licences; and,
- 330 timber licences.

In 1992-93, the commitment of cutting rights to the forest industry on regulated Crown land is expected to range between 72 million cubic metres and 73 million cubic metres.

The commitment level from 1993-94 through 1996-97 will depend on allowable annual cuts determined by the chief forester for timber supply areas and tree farm licences during that period.

The annual harvest from regulated Crown lands is expected to approximate the commitment level over the program period.

An additional nine million cubic metres to 13 million cubic metres are expected to be harvested annually from unregulated land, including timber licences, private land, federal land and Indian reserves.

Priorities

In 1991, the auditor general conducted a value-for-money audit of the Forest Service's system for monitoring timber harvesting practices and suggested several areas where improvements could be made.

In 1991, the Forest Service revised its monitoring system to reflect the auditor general's findings and to ensure a more effective and efficient system of field monitoring.

Forest Service programs

In 1992-93, the implementation of this system will be a timber harvesting priority.

■ Engineering

The engineering sub-program is responsible for maintaining an effective and efficient forest road access network.

Activities included in the sub-program are:

- planning;
- construction;
- maintenance; and,
- de-activation of Forest Service roads.

There are more than 33,000 kilometers of Forest Service roads and 3,100 major bridges and culverts administered by the staff.

Under the engineering sub-program, the property services section is responsible for acquisition of Forest Service property for road rights-of-way and other purposes as well as for developing and monitoring property acquisition standards and procedures.

This involves:

- negotiations with property owners;
- appraisals of land and buildings;
- arrangement of leases;
- reservation of Crown lands; and,
- disposal of surplus properties.

Right-of-way acquisition is predominantly driven by the engineering sub-program and the Small Business Forest Enterprise Program.

Small Business Forest Enterprise Program

The Small Business Forest Enterprise Program sells Crown timber to firms and individuals throughout the province.

The program has four principal objectives:

- **opportunities:** the program provides opportunities for individuals and firms in the forest industry to acquire timber for their operations, and for individuals and firms to enter the industry and establish new businesses.

Planned goals and expenditures of the engineering sub-program

Activity	Fiscal year				
	1992-93	1993-94	1994-95	1995-96	1996-97
*Road/bridge construction					
• cost in \$ millions	28.5	33.3	25.2	21.9	21.5
• kilometers of road	900	916	696	624	586.
• number of bridges	66	73	37	42	36
*Bridge Replacements					
• cost in \$ millions	7.5	7.3	6.8	6.9	7.0
• number of bridges	114	120	124	118	118
Road maintenance					
• cost in \$ millions	4.8	5.9	6.0	6.4	6.9
• kilometers of road	4 800	5 900	6 000	6 400	6 900
*Road deactivation					
• cost in \$ millions	2.9	3.0	2.5	2.0	2.1

* Includes access for the Small Business Forest Enterprise Program.

Forest Service programs

- **diversification and employment:** timber will be sold to promote and stimulate the production of specialty- and higher-value forest products, and to generate employment. The establishment of new sawmills will not be encouraged.
- **competition and profit:** the marketing of timber through a competitive process ensures that the most efficient firms are awarded timber sales and the province receives a fair return for the forest resource.
- **forest management:** sound, integrated, forest management will be demonstrated and encouraged throughout the province.

The program has been allocated about 12.5 per cent of the provincial allowable annual cut, or about 9.3 million cubic metres.

Under the program, timber is sold in two main ways:

- **competitive sales** (Section 16 of the *Forest Act*):

These sales are sold to the highest bidder.

A lower limit price, called the upset price, is set. Interested parties then tender an additional amount, called the bonus bid.

The bidder with the highest bonus bid is awarded the sale.

These sales are usually for one or two years.

About 1,400 competitive sales, containing 7.1 million cubic metres, will be awarded during 1992-93.

- **bid proposal sales** (Section 16.1 of the *Forest Act*):

These sales are awarded to the firm which submits the best proposal.

Proposals are evaluated to determine the value added by the applicant's manufacturing facility.

The sale is normally awarded to the applicant with the best combination of bonus bid and value added. These sales range from one to 10 years.

During 1992-93, the Forest Service expects to award approximately 27 bid proposal sales, containing about 2.0 million cubic metres of timber.

A small volume of timber is also sold directly, without competition, under Section 18 of the *Forest Act*.

These sales address emergency situations, involve small volumes, and have short terms.

Competition for timber is brisk.

There are about 2,100 firms and individuals currently registered in the SBFEP.

About 1,700 are registered in Category 1, (loggers), and about 400 are registered in Category 2 (wood products manufacturers).

Bid proposal sales continue to be an important aspect of the Small Business Forest Enterprise Program.

Since their inception in 1988, and as of February 24, 1992, a total of 118 bid proposal sales have been awarded.

Forest Service programs

For various reasons, eight sales have been cancelled or withdrawn.

The remaining 110 sales contain 11.3 million cubic metres of timber, and have been awarded to 94 different firms and individuals.

The successful applicants have proposed \$93 million in capital investment to maintain 2,800 jobs, and to create another 2,000 jobs.

The program is managed on a self-financing basis through the Small Business Forest Enterprise Account.

All revenues from small business timber sales, including upset stumpage, bonus bids, annual rent, scaling fees, and registration fees, are credited to the account.

All program costs, including timber cruising, road building, basic silviculture, administration, and protection, are debited from the account.

Sufficient funds are reserved in the account to offset future reforestation costs.

Revenues in excess of current expenditures and reforestation costs are

returned to the province's Consolidated Revenue Fund.

Each year, the program submits a business plan to Treasury Board for approval.

The business plan for 1992-93 forecasts revenues of \$150.7 million and expenditures of \$91.1 million, with the following budget:

Administration	\$17.9	million
Harvesting:		
• sales	12.5	million
• roads	33.7	million
Silviculture	26.0	million
Protection	1.0	million
Total	\$91.1	million

The silviculture liability, for those areas harvested under the program, will increase from \$86.2 million in 1992-93, to about \$95 million in 1993-94, and remain fairly constant through to 1996-97 at about \$94 million.

These funds are set aside in the Small Business Forest Enterprise Program Account to pay for future silvicultural activities.

Forest Service forecasts for the Small Business Forest Enterprise Program

	Year				
	1992-93	1993-94	1994-95	1995-96	1996-97
Volume sold (thousand cubic metres)	9 109	9 219	9 284	9 371	8 888
Area harvested (hectares)	9 605	25 531	36 605	35 412	30 520
Area planted (hectares)	18 257	22 302	27 399	25 859	24 472
Seedlings planted(000)	27,036	30,799	37,345	35,615	33,260

Forest Service programs

Silviculture program

The silviculture program consists of four components:

- basic silviculture;
- incremental silviculture;
- seed and nursery operations; and,
- forest health.

The program has a total expenditure of \$227.2 million, including \$24.5 under the Canada - B.C. Forest Resources Development Agreement.

■ Basic silviculture

Basic silviculture includes all activities that ensure reforestation of recently denuded areas.

The basic silviculture component sets standards for restocking Crown and regulated private forest lands with commercially useful trees, and monitors performance relative to those standards.

It also funds and administers restocking of forest areas disturbed by fire, pests and certain timber harvesting.

Activities include surveys, site preparation, planting, brushing, and spacing.

Responsibility for funding basic silviculture activities was shifted to major licensees and the Small Business Forest Enterprise Program in 1987.

Major licensees are required, at their own expense, to restock areas harvested on and after October 1, 1987, with commercially useful trees.

They are required by law to follow a prescription and schedule approved by staff under the silviculture program.

The Forest Service's role is to monitor and audit the major licensees' performance.

The basic silviculture component also provides funds for all the remaining basic silviculture requirements on:

- land harvested by major licensees between January 1, 1982, and September 30, 1987;
- land harvested under the Small Business Forest Enterprise Program and other minor tenures up to December 31, 1987;

Goals for basic silviculture funded by the Forest Service

	1992-93	1993-94	1994-95 (hectares)	1995-96	1996-97
Surveys	590 000	454 625	400 731	374 697	299 868
Site preparation	47 000	38 000	38 000	28 000	23 000
Planting	62 000	57 000	41 000	34 000	28 000
Brushing	70 000	62 000	52 000	43 000	38 000
Spacing	23 000	53 000	60 000	59 000	10 000
			(number)		
Audits	4,200	4,200	4,400	4,500	4,500

Forest Service programs

- land denuded by fire and pests; and,
- the remaining backlog of not-satisfactorily-restocked forest land and the brushing of stocked plantations on land harvested before January 1, 1982.

The Forest Renewal Plan initiated in 1991 will continue to fund the basic silviculture component at the planned level.

■ Incremental silviculture

The incremental silviculture component includes activities to improve the value and growth of immature forests.

Activities include surveys, spacing, fertilizing, and pruning.

To ensure effective targetting, some incremental silviculture objectives have been deferred while the inventory is updated and silvicultural goals are better identified.

The Canada - B.C. Forest Resources Development Agreement, signed in 1991, will fund two-thirds of incremental silviculture activities over the next three years, with the remainder provided by regular provincial funds.

Approximately 10 000 additional hectares will be treated under the South Moresby Implementation Forest Replacement Account and the Forest Enhancement Program.

The South Moresby account was established in 1988 to help offset the timber harvests and jobs lost by the creation of the South Moresby National Park Reserve.

The Forest Enhancement Program provides employment and training opportunities.

Its goals reflect funding by the Ministry of Social Services and projects proposed by sponsors outside government.

■ Seed and nursery operations

The seed and nursery operations manage:

- 22 seed orchards throughout the province (they cover seven tree species);
- a tree seed centre in Surrey; and,
- three nurseries, two of which are located in Surrey and one near Salmon Arm.

All seed used for reforestation of Crown land is registered, tested and stored at the tree seed centre.

Goals for incremental silviculture funded by the Forest Service

	1992-93	1993-94	1994-95 (hectares)	1995-96	1996-97
Surveys	50 000	107 000	120 000	127 000	127 000
Spacing	16 000	28 000	34 000	37 000	37 000
Fertilizing	7 000	15 000	18 000	19 000	19 000
Pruning	2 000	6 000	7 000	8 000	8 000

Forest Service programs

Seed is collected from natural forests as well as from seed orchards, which are designed to produce genetically improved seeds.

By the year 2000, orchards managed by the Forest Service and the private sector will supply seed for an estimated 30 million seedlings for the coastal region and 100 million seedlings for the interior.

Seedlings planted on Crown land are carefully selected to ensure suitable species and sufficient genetic variation on each site.

Since 1987, the forest industry pays the cost of seed and seedlings required to meet its basic silviculture responsibilities.

The three Forest Service nurseries provide seedlings for the Small Business Forest Enterprise Program and other Forest Service needs.

The remainder of the seedlings planted in the province are grown in private sector nurseries.

This component also provides extension services for private seed orchards, nurseries, and reforestation workers.

Services include testing of cones, seeds and seedlings, coordination of sowing requests, and technical support for seed orchard and nursery management.

■ Forest health

The forest health component provides information and technical advice to forest managers on how to prevent or reduce growth loss and damage in young and mature forests caused by insects, diseases, and small mammals.

Forest health activities are coordinated with the activities of the integrated resource management, fire suppression and harvesting programs, and the Small Business Forest Enterprise Program.

Bark beetles and other pests are still damaging forests and rangelands over widespread areas of the province.

Control and management efforts in 1992-93, will concentrate on the mountain pine beetle and the Asian gypsy moth.

Other efforts will include the establishment of disease-free young stands with improved growth rates and wood quality. Small mammals will be controlled by integrating appropriate strategies or treatments into harvesting, reforestation and stand-tending activities.

Research program

The research program provides scientific knowledge, biological insight and improved technology for achieving a great diversity of forest resource management objectives and environmental values.

The research program's scientists, by cooperating with many national and international research agencies, ensure that new knowledge and promising developments are available to B.C. forest and range managers.

In the last decade, increasing demands worldwide for both timber and non-timber forest benefits have presented resource managers with real dilemmas in setting realistic goals for each resource and in managing the forest lands to meet them.

Forest Service programs

Under the Forest Renewal Plan, new research is underway to assist forest managers with important integrated resource management issues, such as old-growth, biological diversity, partial cutting alternatives to clear-cutting, and timber harvesting impacts on other resource values.

In addition, new opportunities for improving wood quality, pest resistance, and silvicultural practices are being pursued through studies of tree genetics and forest growth.

Recent examples of research program outputs are:

- a field guide for management of landslide-prone terrain;
- a site index for coastal species and interior sites;
- guidelines for measuring soil disturbance following timber harvesting;
- a guide to the principles and practices of new forestry;
- a bibliography of old-growth forests in B.C.;
- a special report on B.C. ecosystems;
- a system to predict growth and yield;
- a hemlock breeding strategy;
- a report on Noble Fir performance in coastal British Columbia; and,
- a color biogeoclimatic zone map of the province.

Program activities include research, communication and extension services.

Increased emphasis is being placed on communicating research findings and other technical information in a timely and effective manner.

Program staff involved in research and extension are located at the research branch in Victoria, in six regional offices, and at three research stations.

The 1992-93 budget is \$17.9 million, which includes \$6.3 million from the Forest Renewal Plan.

Fire suppression program

The fire suppression program protects B.C.'s forest and range resources from wildfires.

Protection of human life, private property and improvements is especially important as wildfires increasingly threaten people and developments outside of organized communities.

The commercial value protected by the program goes beyond the \$12-billion forest sector to include approximately \$24.5 billion of housing and other developments outside urban areas.

Without protection from wildfires, many developments in interface areas would be lost and, in parts of the province, as much as 25 to 50 per cent of long-term timber supplies to the forest industry and associated manufacturers could be lost to wildfires.

The overall goals are to keep the area burned by wildfire below 69 000 hectares and the timber volume lost to wildfire below 2.6 million cubic metres annually.

Expenditures depends on the severity of the fire season.

Budgeted expenditure for 1992-93 is \$40.6 million in fire preparedness costs and \$21 million in direct fire costs.

Forest Service programs

Future innovation in the fire suppression program includes an increase in the use of highly trained 20-person unit crews.

The use of forward attack bases will allow for the movement of personnel and equipment to high-risk areas in anticipation of potential fires.

The goal is to manage all sources of air pollution and maintain air quality at acceptable levels.

The Forest Service is doing its part by managing prescribed fire to reduce smoke emissions.

■ Fire preparedness

The fire preparedness sub-program is based on using the positive benefits of fire in ecosystems, while reducing the damage and impacts of wildfires.

Fire is used under planned, pre-structured conditions to meet specific land and resource management objectives such as:

- improving range lands for domestic livestock;
- improving habitat and forage for wildlife, preparing areas for reforestation; and,
- reducing wildfire hazards.

Wildfire prevention is critical to protect improvements and recreation as well as timber values from catastrophic fire, and to secure public safety.

In response to concern about smoke from wildfires, and from prescribed fires, the Forest Service and Ministry of Environment, Lands and Parks struck the Clean Air Policy Steering Committee.

The committee's function is to ensure an integrated smoke management policy across B.C.

The Ministry of Energy, Mines and Petroleum Resources, the Ministry of Health, the Ministry of Agriculture and Fisheries, the Ministry of Tourism and Culture, and the Ministry of Municipal Affairs, Recreation and Housing are participating in this process.

Appendices

Notes on linkages to other reports

■ Forest Service reports

The *Ministry of Forests Act* requires the Forest Service to publish three reports and lay them before the Legislative Assembly:

- A forest and range resource analysis was required not later than 1979, 1984, and is required every 10th year after 1984. These analyses are to describe the conditions, management, and potential future uses of the forest and range resources, to enable the Legislative Assembly to determine overall priorities and long-term objectives.
- A forest and range resource program (this report) is to be updated annually, to describe the government's proposed priorities, methods, and schedules for management and improvement of the province's forest and range resources.
- An annual report is required to record and evaluate the performance of the Forest Service in implementing the program set out in the previous year. It describes accomplishments, the money spent, and the level of management of the resources entrusted to the Forest Service.

These three documents provide a continuing public record of the Forest Service's goals and performance in forest and range management.

Their purpose is to promote public awareness and understanding of the management of B.C.'s forests and rangelands.

The Forest Service provides copies of the forest and range resource program free of charge.

Copies are available from:

Public Affairs Branch
Forest Service
595 Pandora Street
Victoria, British Columbia
V8W 3E7

Phone: 387-5255
FAX: 387-8485

Copies of the 1984 *Forest and Range Resource Analysis* and the latest annual report are available from:

Crown Publications Inc.
546 Yates Street
Victoria, British Columbia
V8W 1K8

Phone: 386-4636
FAX: 386-0221

Appendices

■ Estimates / Public Accounts

For ease of comparative reading, the program descriptions in this report follow, as closely as possible, the structure of the government's Estimates for the 1992-93 fiscal year and, consequently, also the Public Accounts for that year.

The votes, sub-votes and special accounts shown in the Estimates for 1992-93 are linked to the programs, described in this five-year program, as follows:

Estimates

Vote 41:

- Minister's Office

Vote 42:

- Ministry Operations:
 - Management Services
 - Harvesting
 - Research
 - Integrated Resource Management
 - Inventory
 - Silviculture

Vote 43:

- Fire Suppression

Vote 44:

- B.C. Forest Resources Commission

Special Accounts:

- Small Business Forest Enterprise
- South Moresby Implementation
- Forest Stand Management

Five-Year Program

- Management services program
- Management Services program
- Harvesting program
- Research program
- Integrated resources management program
- Inventory program
- Silviculture program
- Fire suppression program
- Small Business Forest Enterprise Program
- Silviculture program

The Forest Renewal Plan is funded through **Vote 42** (Management Services, Research, Inventory and Silviculture sub-votes).

Appendices

Forest Service organization

As of April 7, 1992, the Forest Service is organized into three divisions, six regional offices, 43 district offices, and 17 branches in headquarters.

Reporting to the deputy minister are the three divisions' assistant deputy ministers and the directors of the corporate policy and planning, economics and trade, and public affairs branches.

Reporting to each of the assistant deputy ministers are the following components of each division:

- Operations division:
 - Cariboo region (five districts);
 - Kamloops region (seven districts);
 - Nelson region (seven districts);
 - Prince George region (eight districts);
 - Prince Rupert region (seven districts);
 - Vancouver region (nine districts);
 - Protection branch;
 - Timber harvesting branch; and,
 - Valuation administration branch.
- Forestry division:
 - Forest science research branch;
 - Integrated resources branch;
 - Inventory branch;
 - Range branch;
 - Recreation branch; and,
 - Silviculture branch.
- Management services division:
 - Audit services branch;
 - Financial services branch;
 - Human resources branch;
 - Information systems branch;
 - Technical and administrative services branch; and,
 - Legal services (Ministry of Attorney General).